PB85-249563

Superfund Enforcement Decision Document (EPA Region 5): A and F Materials Company Greenup, Illinois, June 1985

(U.S.) Environmental Protection Agency
Washington, DC

14 Jun 85

U.S. Department of Commerce
National Technical Information Service
NTIS

United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R05-85/012
June 1985

PB85-249563

EPA

Superfund Enforcement Decision Document:

A&F Materials Company, IL

REPRODUCED BY
NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
EPA/ROD/R05-85/012		PB85 249563/AS

4. TITLE AND SUBTITLE	5. REPORT DATE
ENFORCEMENT DECISION DOCUMENT A&F Materials Company, IL	June 14, 1985 6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)	8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS	10. PROGRAM ELEMENT NO. 11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS U.S. Environmental Protection Agency 401 M Street, S.W. Washington, D.C. 20460	13. TYPE OF REPORT AND PERIOD COVERED Final ROD Report 14. SPONSORING AGENCY CODE 800/00

15. SUPPLEMENTARY NOTES

16. ABSTRACT

The A&F Materials site is located on three and three quarter acres of land on West Cumberland Street in Greenup, Illinois. The site is bounded by open farmland/woodland, the Village of Greenup Wastewater treatment plant, and private residences. In addition, the City of Newton occasionally withdraws drinking water from the Embarras River, which is located twenty-one miles downstream from the site. The A&F Materials facility began operation in March 1977 and continued until it shut down in 1980. The operation processed waste materials (including, but not limited to oil, sludge, caustic and sulfuric acid) into fuel oil and fire retardant chemicals. During the course of operations, there were numerous violations of the permit issued to A&F Materials by the Illinois Environmental Protection Agency. By March 1978, four storage lagoons became filled and began to overflow, contaminating soil and drainage pathways leading to the Embarras River. In addition, twelve steel storage tanks containing a mixture of waste oils, sludges, spent caustics, spent acids, contaminated water and other waste products, were located on site. These tanks failed on several occasions, releasing their contents into the surrounding environment.

The selected remedial action includes: removal and disposal of all soils contaminated over the recommended action levels, including soils containing greater than 1 ppm PCBs; monitoring of the ground water; cleaning and removal of on-site equipment
(continued on separate page)

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Record of Decision A&F Materials Company, IL Contaminated Media: soil, sw Key contaminants: PCBs, organics & heavy metals		

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS *(This Report)*	21. NO. OF PAGES
	None	36
	20. SECURITY CLASS *(This page)*	22. PRICE
	None	

EPA Form 2220-1 (Rev. 4-77) PREVIOUS EDITION IS OBSOLETE

Continued

and buildings; testing and disposal of soil underlying the building if it is found to be contaminated above the recommended action levels; grading of the site; and removal of the fence surrounding the site. Total capital cost for the selected remedial alternative is estimated to be $824,000.

ENFORCEMENT DECISION DOCUMENT

REMEDIAL ALTERNATIVE SELECTION

Site: A & F Materials Company, Greenup, Illinois

Documents Reviewed

I have reviewed the following documents describing the need for remedial alternatives at the A & F Materials site:

- "Remedial Investigation Report, A & F Materials Company Site, Greenup, Illinois", Engineering - Science, October 1984.
- "Feasibility Study Report, A & F Materials Company Site, Greenup, Illinois", Engineering-Science, January 1985.
- Summary of Remedial Alternative Selection
- Community Relations Responsiveness Summary
- Partial Consent Decree, dated September 12, 1984

Description of Selected Alternatives

1. Soils/Sediments
   - All soils contaminated over the recommended action levels, including soils containing greater than 1 ppm PCBs will be removed, and disposed of in a U.S. EPA approved off-site facility.
   - Groundwater monitoring will be conducted to confirm that no further soil removal is required.
2. Buildings and Equipment
   - Equipment and structure of the buildings, including concrete floors, will be cleaned, dismantled, and removed from the site for disposal at a U.S. EPA approved facility.
   - Soil underlying the building will be tested and if found to be contaminated above the recommended action levels, will be disposed at a U.S. EPA approved facility.

3. Site Grading
   - Site grading will include filling depressions to eliminate ponding, covering with sufficient topsoil, and providing and maintaining a vegetative cover to prevent erosion.

   - The fencing surrounding the site will be removed.

Declarations

Consistent with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), the National Contingency Plan, and the Partial Consent Decree of September 12, 1984, and after consultation with the Illinois Attorney General and the Illinois Environmental Protection Agency, I have determined that the above remedy for the A & F Materials site effectively mitigates and minimizes damage to and provides adequate protection of public health, welfare and the environment. Groundwater issues at this site will be addressed in a separate document.

I have also determined that the action being taken is a cost-effective alternative when compared to the other remedial options reviewed. In addition, the off-site transport, treatment, and secure disposition is more cost-effective than other remedial action alternatives considered and is necessary to protect public health, welfare and the environment.

Adam Lesnik (Acting)
Valdas V. Adamkus
Regional Administrator

June 14, 1985
Date

Attachments:

Summary of Remedial Alternative Selection
Community Relations Responsiveness Summary
Partial Consent Decree, dated September 12, 1984

///

SUMMARY OF REMEDIAL ALTERNATIVE SELECTION
A & F Materials Site, Greenup, Illinois

I. Site Location and Description

The A & F Materials site is located on three and three quarter acres of land on West Cumberland Street in Greenup, Illinois (Figure 1). The site is bounded by open farmland/woodland, the Village of Greenup wastewater treatment plant, and private residences (Figure 2).

Drainage from the site reaches the Embarras River by a ditch along the Illinois Central Railroad tracks. The site has a pronounced slope toward the Embarras River. The portion of the site outside of the facility fenceline is in the river's 100-year floodplain. The City of Newton occasionally withdraws drinking water from the Embarras River twenty-one miles downstream of the site. Geological information indicates that the site is underlain by sandy deposits associated with recent stream development. These alluvial sands overlie a sand and gravel deposit of glacial outwash origin. No drinking water or other production wells are located downgradient of the site. The drinking water supply for the Village of Greenup is separated from the site by the Embarras River which serves as a hydraulic barrier to any ground water flowing from the site. The site is located on a hillside which discharges runoff from rainfall directly onto the site.

II. Site History

The A & F Materials facility began operation in March 1977 and continued until it shut down in 1980. The operation processed waste materials (including, but not limited to oil, sludge, caustic and sulfuric acid) into fuel oil and fire retardant chemicals. During the course of operations, there were numerous violations of the permit issued to A & F Materials by the Illinois Enviromental Protection Agency. By March 1978, four storage lagoons became filled and began to overflow, contaminating soil and drainage pathways leading to the Embarras River. In addition, twelve steel storage tanks containing a mixture of waste oils (contaminated with PCBs and organics), sludges, spent caustics, spent acids, contaminated water and other waste products, were located on the site. The tanks had failed on several occasions, releasing their contents.

After the closure of the facility in 1980, the site was classified as an abandoned hazardous waste site under CERCLA. There have been numerous preliminary investigations and short-term removal actions sponsored by U.S. EPA and IEPA to secure the site and prevent the release of contaminants.

The A & F Material Company site was included on the proposed National Priorities List of December 1982. The site was ranked 62 out of an original total of 419. The December 1982 proposed list was made final in September 1983.

III. Current Site Status

In March 1980, May 1982, and December 1982, various actions were taken at the site to lower the immediate potential of releases. These actions included lowering the level of wastes in the lagoons, diking, trenching, cleanup and removal of on-site and off-site wastes. In addition, in March 1983 a temporary cap was placed on the consolidated sludge.

On September 12, 1984, a Partial Consent Decree, hereinafter the "First Consent Decree", was entered into by four companies, Aluminum Company of America, Northern Petrochemical, CAM-OR Inc. and Petrolite Corporation, hereinafter "Consenting Defendants". Under the terms of the Consent Decree, the Consenting Defendants agreed to undertake surface cleanup at the A & F Materials site as an additional removal action. As a part of the removal action, a total of 5,500 gallons of caustic waste and 4,000 gallons of PCB contaminated oil from the tanks, and 10,000 tons of soil/sludge from the lagoons have been removed from the site.

Pursuant to the First Consent Decree, an RI/FS was prepared by the Consenting Defendants which determined the amount of soil/sludge to be removed. Approximately 86% of this material, or 10,000 tons, has already been removed. The only soil/sludge remaining is approximately 1-2 feet of material covering the entire area of Area A and some material in the two lagoons (Figure 3). The amount of soil/sludge remaining on-site is estimated to be 1,600 tons.

The amount of soil contaminated with PCBs which contained levels of 1 ppm or greater was estimated to be 1,332 cubic yards (Figure 4). Area C has already been removed. In addition, a small area of soil located at the western edge of the building was found to contain high levels of contaminants, but no PCBs were detected.

The RI/FS determined that hazardous substances were used in the building and there is evidence of spills and residues remaining in the equipment and in the building. The building and equipment were not sampled due to the expense involved. Therefore, the RI/FS assumes that the building and equipment are contaminated with residues that are hazardous.

Existing geologic information indicates that the site is underlain by 3-21 feet of sandy alluvium over 2-26 feet of outwash sand and gravel. Prior to the removal actions already undertaken at the site, a major potential pathway for contaminant migration was surface runoff from the leaking tanks and overflow from the lagoons. Since the removal actions, the most significant pathway appears to be subsurface movement of contaminants which may be remaining in the ground water and from the contaminated soil.

IV. Federal Enforcement

A Federal lawsuit to bring about site cleanup at Greenup was initiated by the filing of a Complaint on September 3, 1980, pursuant to authority under the Resource Conservation and Recovery Act, 42 U.S.C. Sections 6901, 6973, and the Clean Water Act, 33 U.S.C. Sections 1251, 1311, 1319 and 1321. The Complaint alleged that the handling, treatment, storage and disposal of solid and hazardous wastes at the facility presented an imminent and substantial endangerment to health and the environment. The Complaint also cited the defendants for violation of Section 311(e) of the CWA, as evidenced by overflows from the pits. The original Complaint did not include generators as defendants.

Letters to all known generators, dated November 3, 1981, were sent by the Assistant U.S. Attorney requesting their participation in site cleanup. Demand letters to the generators for the required remedial action were sent by the Department of Justice on August 18, 1982. The generators were subsequently added to the lawsuit on February 14, 1983.

On September 12, 1984, the First Consent Decree was entered into by the Consenting Defendants. Under the terms of the First Consent Decree, the Consenting Defendants agreed to undertake a surface cleanup at the A & F Materials site as an additional removal action. This action consisted of emptying and disposing of the steel tanks, and emptying and disposing of the sludges and soils in the storage lagoons.

Additionally, the First Consent Decree provided for the Consenting Defendants to conduct an RI/FS, to reimburse the U.S. for any additional emergency response taken at the site, and to reimburse the U.S. for $340,000, and reimburse the State for $40,000. Subsequently, McDonnell-Douglas entered into a Partial Consent Decree (hereinafter the "Second Consent Decree") with the U.S. and the State, in which McDonnell-Douglas agreed to pay the U.S. $150,000 as reimbursement for past surface response costs at the site.

V. Alternatives Evaluation

A. Soils/Sediments

In the RI/FS conducted by the Consenting Defendants, several technologies were screened and eliminated. These included containment, diversion and grading, solidification, insitu treatment, and no action. The no action alternative was eliminated because it does not address the issue of existing contamination on site. Some action is considered necessary to remove this contamination and the threat to human health, welfare and the environment. Two alternatives were analyzed in detail: 1) partial removal with subsequent disposal at a secure off-site facility, and 2) complete removal of contaminated soils/sediments above background with subsequent disposal at a U.S. EPA approved facility. The costs of all the evaluated alternatives are shown in Table 1.

1) Partial Removal

Partial removal would include removal of the four contaminated soil zones and any other areas with contaminants at levels of concern. This technology would be useful in conjunction with disposal at a U.S. EPA approved facility. The environmental and public health risks for this alternative are low.

2) Complete Removal

Complete removal would consist of removal of all contaminated soils and sediments. This technology would be used in conjunction with disposal at a U.S. EPA approved facility. The environmental and public health risks associated with this alternative would be low.

B. Building and Equipment

In the RI/FS, the no-action alternative, consisting of monitoring and analysis and site maintenance, was screened and eliminated for the building and equipment. The no-action alternative was eliminated because it does not address the issue of existing contamination on site. Some action is considered necessary to remove this contamination and the threat to human health, welfare and the environment. Three alternatives were analyzed in detail: 1) cleaning and complete removal, 2) decontamination and complete removal, and 3) cleaning/decontamination and partial removal.

1) Cleaning and Complete Removal

This option consists of cleaning using high temperature, high pressure equipment, dismantling of the equipment and the building including the concrete floors, and disposal at a U.S. EPA approved facility. Effluent from the cleaning process would be treated, tested and discharged in a manner approved by U.S. EPA. Soils beneath the building would be tested and, if contaminated, would be removed, and disposed of in a U.S. EPA approved facility.

2) Decontamination and Complete Removal

This alternative involves decontamination, with repeated use of high temperature and high pressure equipment, until the material is determined to be free of contamination. The building and

equipment as described above, would be disposed of in a manner approved by U.S. EPA. Contaminated water generated during decontamination would be treated, tested, and discharged in a manner approved by U.S. EPA.

3) Cleaning and Partial Removal

This alternative involves cleaning of the equipment and the structure of the building as described in Alternative 1, and disposal at a U.S. EPA approved facility. After the equipment and the building are removed from the site, the floors and foundation would be decontaminated. Core samples of the concrete would be collected to determine the effectiveness of the decontamination. If no contamination is found, the floors and foundation would remain. Contaminated water generated from this step would be treated, tested and discharged in a manner approved by U.S. EPA.

C. Surface Water

The surface water at this site is defined as the water in the Embarras River and in the unnamed drainage ditch near the west boundary of the site.

In the RI/FS, two alternatives were analyzed for surface water: 1) no action, and 2) continued monitoring and analysis.

VI. Recommended Alternatives

A. Soils and Sediments

Partial removal is the most cost-effective (least cost alternative that effectively mitigates and minimizes damage to human health, welfare and the environment) alternative for soil and is therefore the recommended option. This action will comply with the terms of the First Consent Decree by removing soils found to contain greater than the Action Levels shown in Table 2, and disposing of these soils in a U.S. EPA approved facility.

Off-site disposal of the soil is selected because it is the most cost-effective and because it is necessary to protect public health, welfare and the environment from risks created by further exposure to continued presence of the substances.

Figure 4 shows the three areas on the site excluding the lagoons, that were contaminated with greater than 1 ppm PCBs. The volume of soils to be excavated at each of these areas was calculated in the FS as follows:

Area A = 50 feet wide
100 feet long
4 feet deep

equals 20,000 ft^3 or 740 yd^3

Area B = 30 feet wide
50 feet long
4 feet deep

equals 6,000 ft^3 or 222 yd^3

Area C = 100 feet wide
100 feet long
1 feet deep

equals 10,000 ft^3 or 370 yd^3

The total amount of soil to be removed from the three areas is 36,000 ft^3 or 1,332 yd^3 as computed in the FS. Area C has already been removed.

In addition, the area along the western edge of the building was found to be contaminated with PNA compounds. These soils have also been removed and disposed of with the PCB contaminated soils (Figure 3).

The remainder of the site apparently contains various areas with de minimis levels of other compounds. De minimis levels are comparable to those found to occur naturally in the environment, and are below levels which would pose a threat to human health, welfare or the environment. Table 2 shows the background levels of the compounds of interest found in the soil and sediments at the A & F site, and the suggested action level for soil/sediment removal. Soils found to contain levels greater than those in Table 2 are recommended for disposal at a U.S. EPA approved facility. Remaining soils beneath the lagoons will also be removed to levels below those identified in Table 2.

In response to concerns expressed at the December 4, 1984 public meeting, additional soil samples were taken from two locations identified by local citizens. These samples were split with the Illinois Attorney General's (hereinafter "IAG") office.

The IAG analyzed for aliphatic hydrocarbons as well as for the contaminants of concern. Low levels of aliphatic hydrocarbons were found in the split samples. Because aliphatic hydrocarbons are not contaminants of concern, as shown in Table 2, the Consenting Defendants were not required to analyze for them. Aliphatic hydocarbons are compounds found in oil. However, based on review of these sampling results by the Centers for Disease Control, aliphatic hydrocarbons do not present a health threat at this site, particularly at the low levels found. Both the IAG and the responsible parties analyzed for the contaminants of concern and no concentrations above the action levels were found.

The Consenting Defendants will be required to confirm that hazardous substances above the action levels are not present in these two areas by conducting additional soil samples in these areas. The approximate locations of these samples are shown in Figure 5. Samples will be taken at each of these locations, at depths of 1-2 feet, 2-3 feet, and 3-4 feet, for the purpose of determining the areal and vertical extent of contamination, if any. These samples will be analyzed for the hazardous substances shown in Table 2. If hazardous substances above the action levels are found in these samples, the soil in these areas will be removed.

Comments received from State agencies and the public regarding soil removal included the suggestion that additional soil be removed both to reduce the flushing time of the remaining low levels of contamination, and to remove the aliphatic hydrocarbons. However, based on the determination that human health and the environment will be protected after soil removal to the recommended action levels, no further soil removal is required. The Centers for Disease Control concur with this determination. In order to confirm that no further soil removal is required, groundwater monitoring will be conducted. In addition, the Consenting Defendants will be required to implement further remedial action if deemed necessary by U.S. EPA. Additional details and requirements regarding groundwater remedies will be discussed in a separate document.

The sediment from the river and the ditch which was analyzed in the Remedial Investigation Report showed contaminant levels well below the suggested action levels. Thus, it is not recommended to remove and dispose of sediments from the drainage pathways at this time.

B. Building and Equipment

The recommended remedial action for the building and equipment

is cleaning and complete removal. This action is the most cost-effective because it is assumed, in the absence of sampling data, that the building and equipment are contaminated with hazardous substances. Sampling of the building and equipment was not conducted due to the expense involved. Under this alternative, the equipment and structure of the building would be cleaned, dismantled and removed from the site for disposal in a U.S. EPA approved facility. Rinsate from the cleaning process will be treated, tested and discharged in a manner approved by U.S. EPA. Concrete floors and the foundation will also be removed and taken to a U.S. EPA approved facility. Soil samples will be taken from below the south and northwest ends of the building and analyzed to determine if contamination exists. Soil action levels will be used to determine if soil beneath the building would need to be excavated and disposed off-site.

Off-site disposal of the building and equipment is selected because it is the most cost-effective and because it is necessary to protect public health, welfare and the environment from risks created by further exposure to continued presence of the substances.

C. Surface Water

Based on the analyses of samples collected during the remedial investigation indicating that surface water is not contaminated, additional monitoring is not required. Removal of contaminated soil, site grading and vegetation will remove the potential for contamination of surface water. Therefore, no action is recommended for surface waters.

D. Site Grading

Final site grading will be performed for the entire A & F Materials Company site, as specified in the First Consent Decree. This will include filling depressions to eliminate ponding, covering with sufficient topsoil, and providing a vegetative cover to prevent erosion. Areas outside the existing fenceline will not be covered with topsoil because soil samples taken off-site did not show significant levels of contaminants of concern. The fencing will be removed.

After site vegetation, the site will be maintained for three years to prevent erosion, after which time the Consenting Defendants may petition U.S. EPA and the State to cease site maintenance.

The cost associated with the recommended alternatives for the soil/sediments, building and equipment, and site grading are shown in Table 4.

VII. Action Levels

The recommended action levels for soils and sediments at the A & F Materials site are shown in Table 2. These action levels correspond to the highest concentrations of contaminants presently remaining in soils outside of the fenceline of the site and were proposed in the RI/FS by the Consenting Defendants as levels which would provide adequate protection of human health, welfare and the environment and require no further action. These levels have been reviewed by U.S. EPA, and we agree with this conclusion. The levels for toluene and trichloroethylene were adjusted downward. No trichloroethylene was found outside of the lagoons above the required detection limits. The only toluene remaining is at the bottom of the lagoons. Adopting these action levels means that no soil outside the existing fenceline needs to be removed. Soils within the fenceline above these levels will be removed to a secure off site disposal facility. These levels represent the highest levels of contaminants that will remain in the soil at the facility.

As part of the remedial investigation, soil samples were collected outside of the area which could have been potentially impacted by releases from the facility. These results are generally shown as "background" levels on Table 2. However, samples of the waste materials in the lagoons and tanks have shown levels of chromium, cadmium, zinc and iron to be less then the "background" levels originally derived in the feasibility study. The "background" levels for these compounds have been revised to reflect that the levels in soils outside of the fenceline which are higher than the levels found in the waste are actually "background". These levels are not significantly higher than the previous "background" levels listed in the feasibility study. Also shown on Table 2 is a range of elemental concentrations in soils for certain metals compiled by the Centers for Disease Control (CDC). The "background" levels for all of the metals except zinc fall within these ranges.

The level of 2700 ppm zinc is a probable anomaly. This value occurred at a sample from a 1-2 foot depth at a sampling location 1700 feet from the nearest lagoon. A surface sample collected at the same location showed 65 ppm zinc. Samples taken at four adjacent sampling locations averaged 188 ppm zinc, well within the range of normal elemental concentrations of zinc.

The action levels for trichloroethylene, benzene, PCBs, phenols, dicyclopentadiene and PAH compounds are at, or below, the standard detection limits of the analytical methods used to quantify these compounds by U.S. EPA, and are therefore appropriate for use as action levels at this site.

The only action level listed in Table 2 which appears to be above "background", the detection limit, or levels which would be expected to occur at similar locations in the undisturbed environment, is for toluene. Using an analytical approach developed by CDC, U.S. EPA and CDC have evaluated compounds in Table 2 for their direct contact, inhalation and direct ingestion health effects. This would include children, or others who might play on, or otherwise come into contact with the site. None of the compounds present a health threat at the action levels shown.

Toluene was also evaluated for its potential effects on ground water, should toluene be released from the soil into the ground water. Using conservative assumptions for the release rate and mixing within the ground water regime, toluene will not cause ground water to be elevated above those levels which would be fully protective of human health, welfare and the environment. Table 3 shows the concentration of toluene in the soil, applicable groundwater quality criteria and the required mixing to insure that the release of toluene to ground water does not cause unacceptable levels. The required mixing factor is the action level in soil divided by the applicable water quality criteria. Since the required mixing factor is available at the site, and since there are no human receptors using the ground water at this time, no adverse impact of these compounds on ground water is expected due to releases from the soils which will remain at the site.

However, soil removal to those action levels shown in Table 2 will be confirmed by ground water monitoring. As discussed previously, at a minimum, ground water monitoring will be required to insure that ground water contamination will not occur due to these soils. Further remedial action will be required if so indicated by further ground water monitoring. Details regarding the ground water remedy and applicable ground water quality criteria will be presented in a separate document.

VIII. Consistency with the National Contingency Plan

The National Contingency Plan, 40 CFR Part 300.68(e)(2), states that source control remedial actions may be appropriate, if a substantial concentration of hazardous substances remain at or near the area where they were originally located, and inadequate barriers exist to retard migration of substances into the environment. Based upon analysis of the options, State and Federal environmental requirements, and the comments received from the public and the State, the recommended option option has been determined to the consistent with Section 300.68.

IX. Consistency with Other Environmental Laws

The proposed action will not require on-site treatment, storage, or disposal of hazardous wastes. Since all compounds will be removed to background, or the detection limit (except for toluene), the recommended action is fully consistent with RCRA. The level of toluene to remain will be fully protective of human health, welfare and the environment, and therefore is also consistent with RCRA. Although the materials to be removed are not hazardous wastes as regulated by RCRA, they are hazardous substances under CERCLA. The transportation and off-site disposal of wastes will be in accordance with the appropriate and relevant RCRA regulations for the transportation and disposal of hazardous wastes. This will include manifesting of wastes and shipment to a U.S. EPA approved facility.

Any on-site water treatment and discharge to surface waters will be in compliance with State of Illinois permit number 1984-EA-1265 and the substantive requirements of the Clean Water Act. Any necessary storm water permits will be obtained.

The recommended alternatives will minimize potential harm to the site, in accordance with Executive Order 11988, "Floodplain Management", and Executive Order 11990, "Protection of Wetlands". Although no potential impacts on the floodplain could be documented in the remedial investigation, and no further soil excavation will occur in the floodplain, the following measures will be implemented to minimize potential harm or adverse effects to the floodplain:

1. use minimum grading requiremnts;
2. return site to natural contours;
3. maintain vegetation;
4. regulate methods used for grading and filling;
5. require topsoil protection; and
6. no structures will be constructed in floodplain.

In accordance with the Toxic Substances Control Act, PCBs will be removed from the environment at the A & F Materials site to the lowest levels practicably attainable. This will mean removing all soils above 1 ppm and disposing of it in a U.S. EPA approved facility.

At this time, there are no implications for any other environmental laws.

X. Operation and Maintenance

The Consenting Defendants are required to submit an operation and maintenance plan to be approved by U.S. EPA. U.S. EPA will require that the Consenting Defendants implement the approved plan.

XI. Community Relations/Responsiveness Summary

Illinois EPA (IEPA) conducted an extensive community relations program which included several informal meetings in the homes of nearby residents, written updates, and frequent conversations with interested citizens, press, and local officials. The State, with U.S. EPA support, responded to their concerns. Public meetings, one of which was attended by staff from the Centers for Disease Control, were also held by IEPA and U.S. EPA at several times during the RI/FS process.

When the First Consent Decree was filed in June 1984, U.S. EPA assumed the lead on community relations, although the State maintained an active cooperative role. Several public comment periods have been held, accompanied by public meetings, briefings, and other notification of interested parties. A five-week public comment period was available for the FS upon which this record is based.

There was some dissatisfaction among the public during the final months of the negotiations as some individuals apparently believed that they were unable to obtain feedback or response to their questions. However, they are pleased with what has been accomplished and the promptness of action once the First Consent Decree was signed. Information supplied by nearby residents has been useful in discovering the full nature of the contamination and is reflected in the recommendations for the site.

The responsiveness summary is attached.

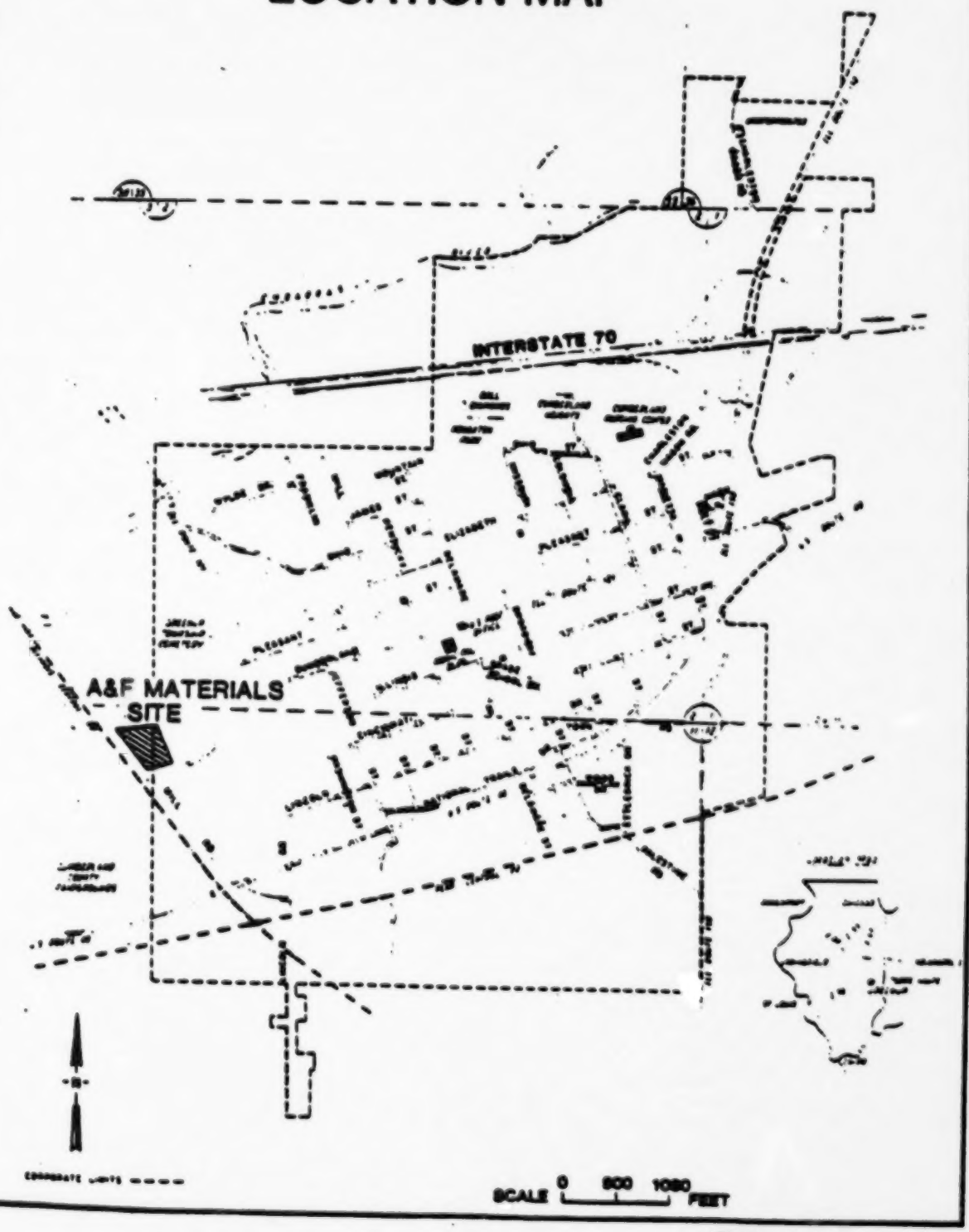
XII. Deletion from the NPL

Implementation of the recommended alternative, in connection with a ground water remedy (to be discussed in a separate document), is expected to allow the site to be deleted from the NPL.

FIGURE 1

A&F MATERIALS CO. SITE
Greenup, Illinois

LOCATION MAP



ES ENGINEERING - SCIENCE

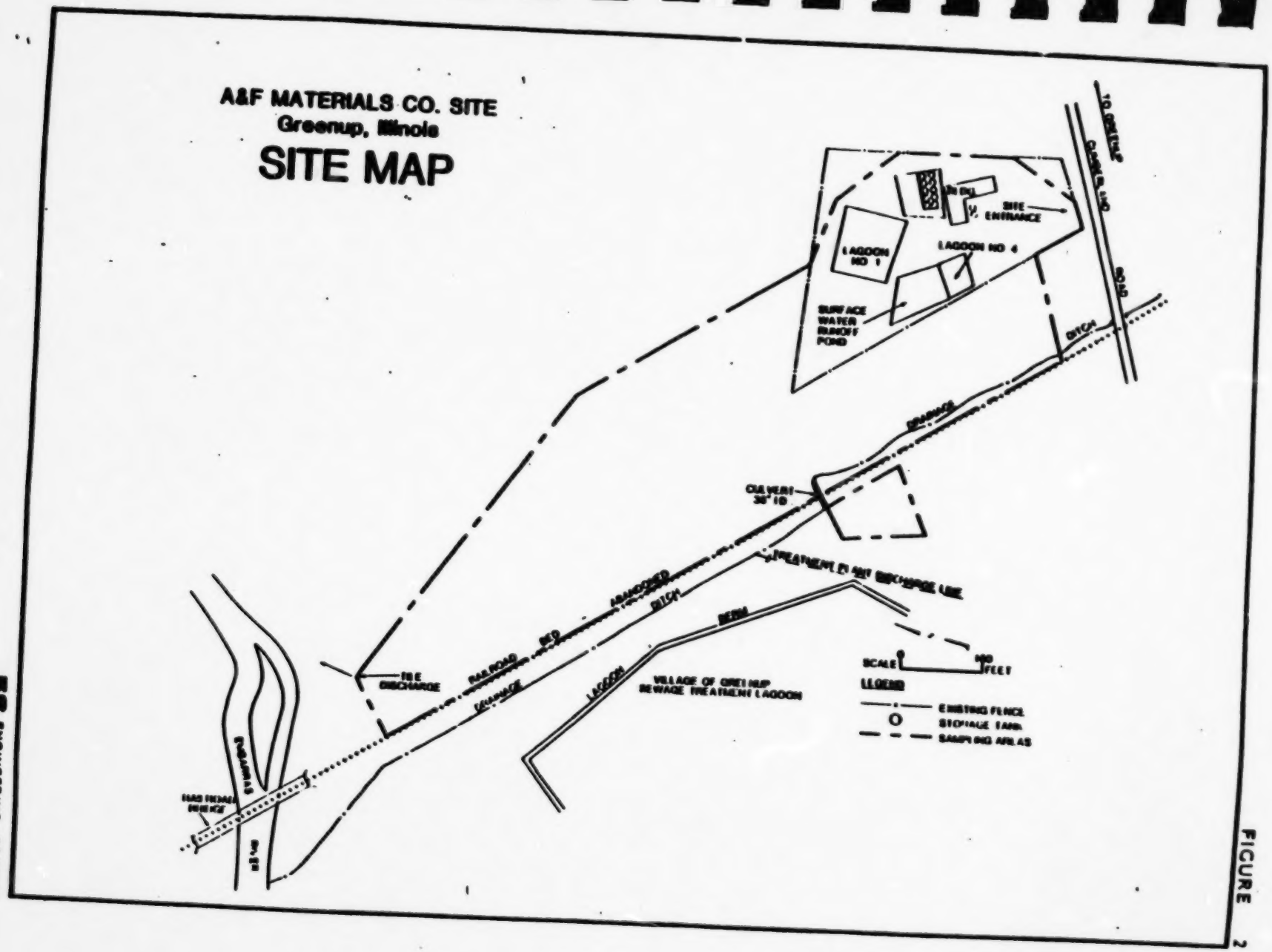

A&F MATERIALS CO. SITE
Greenup, Illinois
SITE MAP
SITE ENTRANCE
LAGOON NO 1
LAGOON NO 4
SURFACE WATER RUNOFF POND
DITCH
ROAD
DRAINAGE
CULVERT 36" ID
TREATMENT PLANT DISCHARGE LINE
ABANDONED RAILROAD BED
DITCH
BERM
FEE DISCHARGE
DRAINAGE
LAGOON
VILLAGE OF GREENUP SEWAGE TREATMENT LAGOON
SCALE 100 FEET
LEGEND
EXISTING FENCE
STORAGE TANK
SAMPLING AREAS
ES ENGINEERING - SCIENCE

FIGURE 2

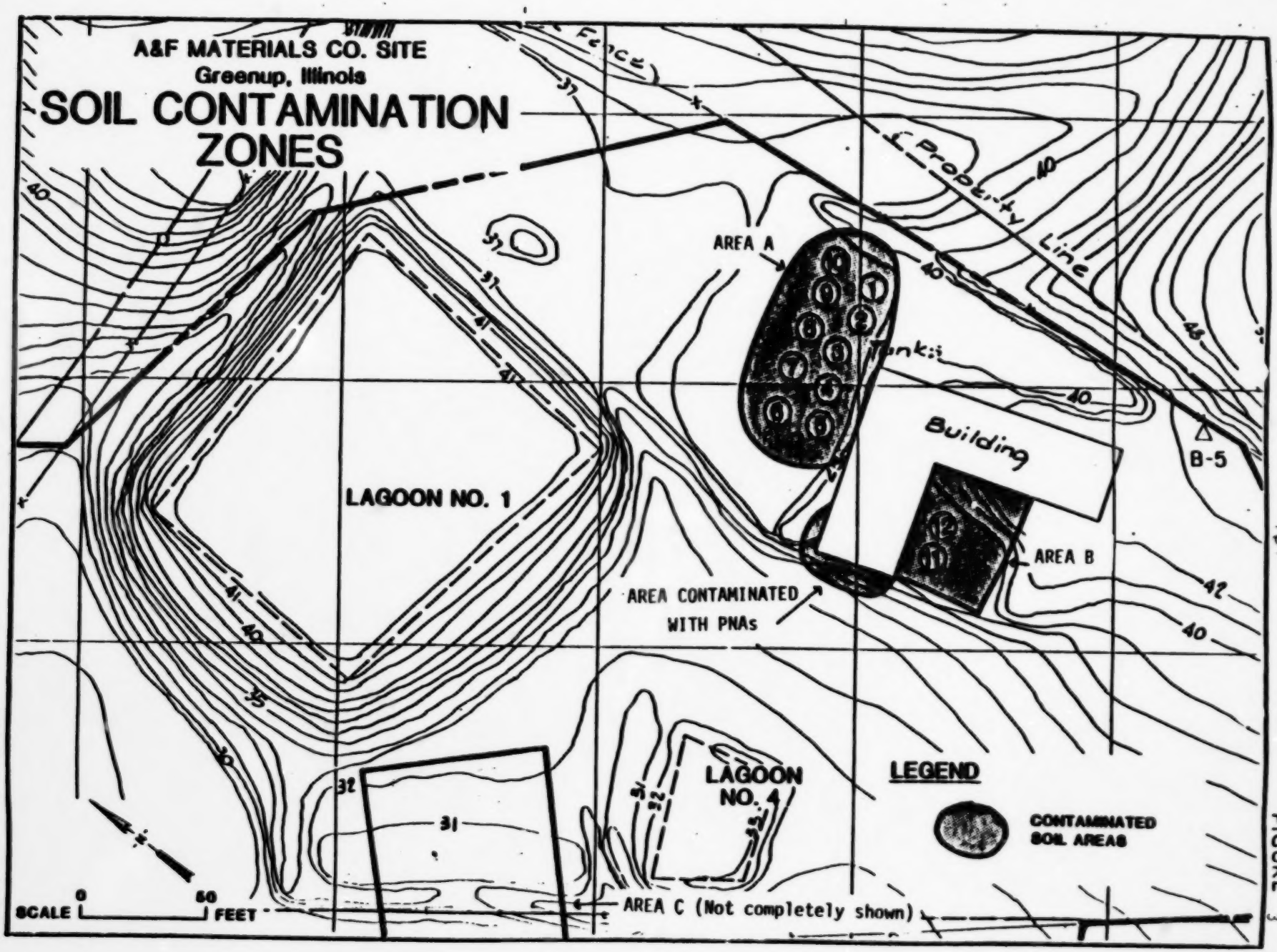


FIGURE 3

8-2

ES ENGINEERING-SCIENCE

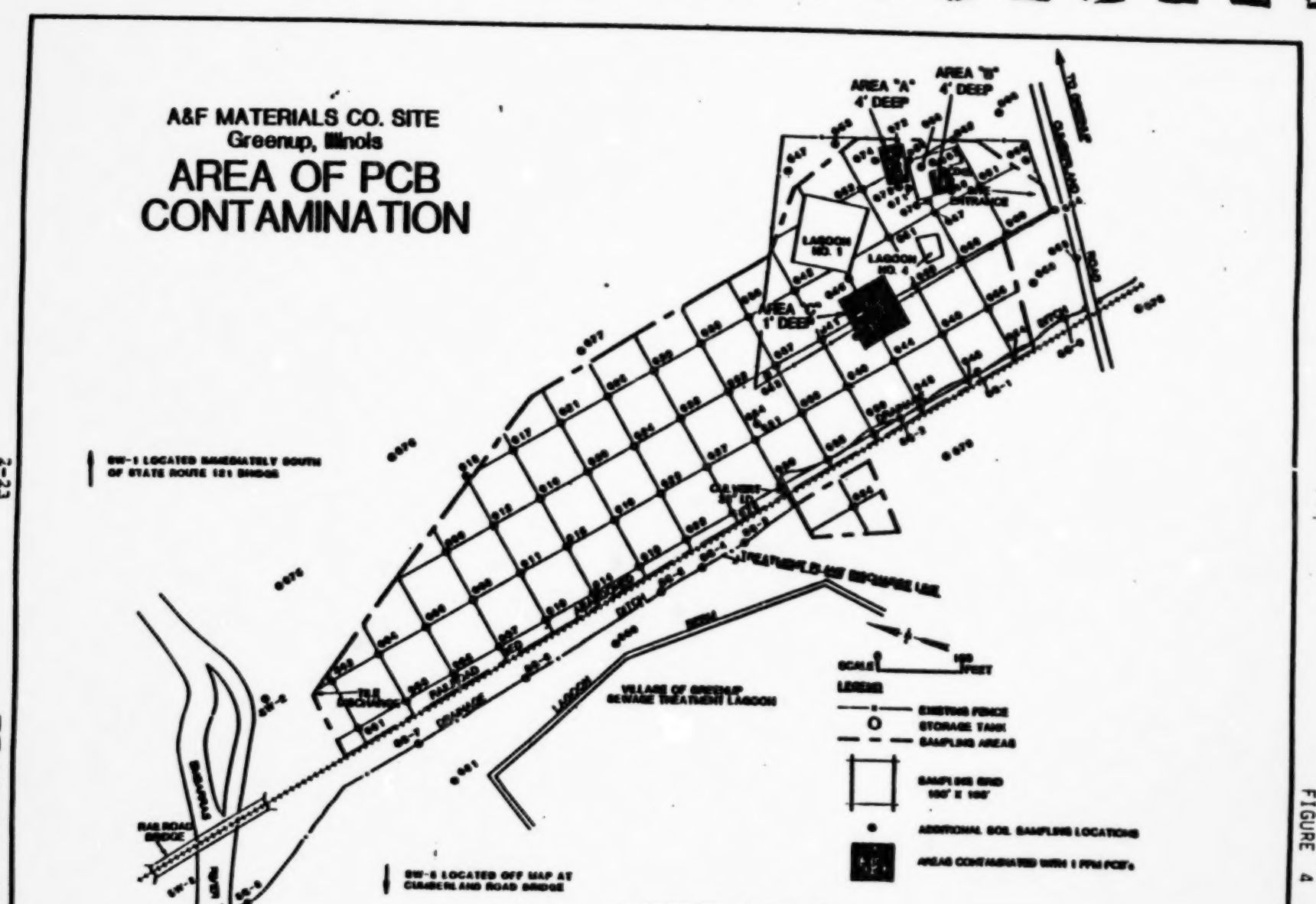


FIGURE 4

ES ENGINEERING-SCIENCE

A&F MATERIALS CO. SITE
Greenup, Illinois

SUPPLEMENTAL SOIL SAMPLING LOCATIONS

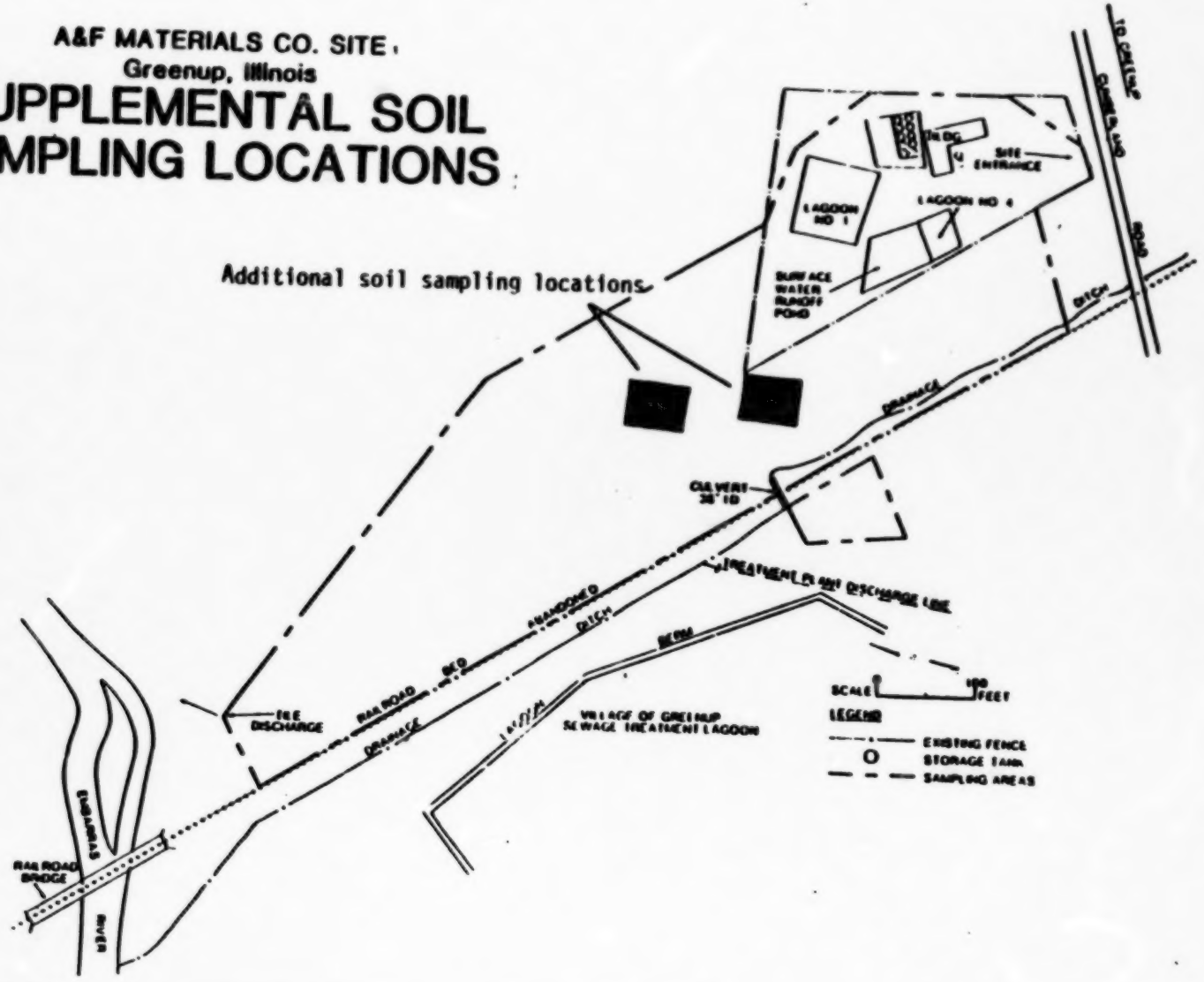


FIGURE 5

ES ENGINEERING - SCIENCE

Table 1

Cost of Remedial Alternatives

A & F Materials Site

Alternative	Cost	Comments
1) Soils and Sediments - Partial Removal	$ 660,000	Includes excavation, transportation, disposal and analytical costs.
- Complete Removal	$1,735,000	Includes excavation, transportation, and disposal; also the construction efforts to remove and solidify sediments.
2) Building and Equipment - Cleaning and Complete Removal	$ 120,000	Includes the costs of decontamination of the equipment and building, collection and treatment of rinsate, sampling and analysis, and disposal at a U.S. EPA approved facility.
- Decontamination and Complete Removal	$ 120,000	Same as above, except increased costs of decontamination of the equipment and building, collection and treatment of rinsate, and sampling and analysis; decreased costs for disposal.
- Cleaning and Partial Removal	$ 96,000	Includes decontamination, treatment of rinsate, collection and analysis of samples of the concrete, and disposal at a U.S. EPA approved facility.

TABLE 2

SOIL AND SEDIMENT CONTAMINANT LEVELS

Compounds	Background Soil Level (ug/gm)	Recommended Soil Action Levels (ug/gm)	Background Sediment Levels (ug/gm)	Recommended Sediment Action Levels (ug/gm)	Medium Elemental Concentrations in Soil (ug/gm) Medium	Range
Benzene	<1	1.0	<1	1.0		
Toluene	<1	12.0	<1	12.0		
Trichloroethylene	<1	1.0	<1	1.0		
PCB	<1	1	<1	1		
Phenols	<10	10	0.38	10		
Dicyclopentadiene	<1	1.0	1	1		
Fluoranthene	<10	1.0	0.47	2.0		
Benzo(a)anthracene	<10	1.5	0.21	2.0		
Chrysene	<10	1.0	0.2	2.0		
Pyrene	<10	1.0	0.64	2.0		
Phenanthrene	<10	1.0	0.28	2.0		
Acenaphthalene	<10	1.0	<10	2.0		
Benzo(a)pyrene	<10	0.5	<10	2.0		
Benzo(ghi)pyrene	<10	0.5	<10	2.0		
Indeno(1,2,3-cd)pyrene	<10	0.5	<10	2.0		
Benzo(b)or(k)fluoranthene	<10	3.5	<10	2.0		
Anthracene	<10	1.0	0.9	2.0		
Naphthalene	<10	2.0	0.33	2.0		
Flourene	<10	1.0	<10	2.0		
Lead	46	160	53	100	29	1-888
Chromium	80	80	12	40	100	5-3,000
Cadmium	5	5	1.6	3	.5	.01-7
Aluminum	30,000	30,000	2,012	15,000	71, 000	10,000-300,000
Zinc	2,700	2,700	102	300	90	1-2,000
Iron	65,000	65,000	9,157	30,000	40,000	100-550,000

TABLE 3

Compound	Water Quality Criteria (ppb)	Action Level in Soil (ppb)	Required mixing factor
Toluene	340*	12,000	35

*Safe Drinking Water Act Health Advisory for chronic exposure.

Assuming complete vertical mixing, no lateral dispersion or diffusion, and an instantaeous release of all the toluene to the groundwater, the required mixing would be obtained within 9 feet of the soil containing toluene.

$$\text{Distance from source to obtain required mixing} = \frac{\text{Required mixing factor}}{\text{porosity x depth of aquifer}} \times \text{depth of soil containing toluene}$$

Where,

Required mixing factor = 35
Porosity = .2
Depth of aquifer = 20 feet
Depth of soil containing toluene = 1 foot

TABLE 4

COST OF RECOMMENDED ALTERNATIVES
A & F MATERIALS SITE

Recommended Alternative	Cost	Comments
1) Soils and Sediments - Partial Removal	$660,000	Includes excavation, transportation, disposal and analytical costs. The volume to be excavated is estimated to be 6,000 yd^3.
2) Building and Equipment -Cleaning and complete removal	$120,000	Includes the costs of decontamination of the equipment and building, collection and treatment of rinsate, sampling and analysis, and disposal at a U.S. EPA aspproved facility.
3) Site grading	$44,000	Includes costs for filling depressions to eliminate ponding, covering with topsoil, and providing a vegetative cover to prevent erosion. This will be done for the entire A & F Materials site.

ATTACHMENT

RESPONSIVENESS SUMMARY

Section 1

PURPOSE OF THIS RESPONSIVENESS SUMMARY

This document has two purposes. The first is to report verbal and written comments on the various remedial actions suggested for the A&F Materials hazardous waste site. The second is to document U.S.EPA's responses to these comments. The remedial action options, including a recommended alternative, were outlined in a draft Feasibility Study (FS) which was completed in October 1984. A revised FS was submitted on January 18, 1985.

Section 2

FEASIBILITY STUDY OVERVIEW

SITE BACKGROUND AND HISTORY

In 1977, the A&F Materials company began recycling industrial waste materials--oils, sludge, caustic and sulfuric acids-- into fuel oil and fire retardant chemcals.

The Illinois Environmental Protection Agency (IEPA) received complaints about the recycling facility soon after it started operations. IEPA investigated and found the company violating numerous permit regulations. The facility was shut down and abandoned in 1980. Waste materials were left in storage tanks, lagoons, and in the processing equipment.

As part of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the waste generators who had stored their materials at the A&F site were required to clean up the site themselves and/or reimburse the state and federal governments for any government cleanup actions.

Several containment actions were taken by IEPA and U.S.EPA to prevent migration of contaminants into the Embarras River. A consent order was finalized after a public comment period in June 1984. In it four companies--Aluminum Company of America (ALCOA), Northern Petrochemical, CAM-OR Inc., and Petrolite Corporation -- agreed as part of a partial consent decree with U.S.EPA and IEPA to do a complete surface cleanup. These four companies (Consenting Defendants) are not the only responsible waste generators; they are the firms that have consented to undertake the cleanup. The cleanup, which the four companies paid for themselves, is scheduled to be finished in August 1985.

CLEANUP ACTIVITIES

All sludge and visibly contaminated soils from the lagoons have been taken offsite for disposal. All liquid material from the tanks has been either treated onsite or disposed of offsite. The tanks were cleaned and removed from the site. Contaminated soil areas outside of the lagoons were also excavated and disposed of offsite. The FS was needed to determine the best course of corrective action for the remaining contaminated soils.

FS SUMMARY

The FS prepared by the Consenting Defendants recommended continued monitoring of groundwater. No other actions for groundwater were deemed necessary because no groundwater wells are affected by the site and, therefore, no health risks can be currently attributed by the site and. Furthermore, the high costs for operation and maintenance of groundwater treatment systems do not appear to be justified.

The Remedial Investigation (RI) determined that the aquifer underneath the site is flushed naturally every 10 to 15 years. The RI predicted that contaminant levels would remain near their present values for a two to four year period and would then decline. A program of groundwater monitoring would verify or dispute these predictions.

The FS prepared by the Consenting Defendants recommended "Alternative A", the partial soil removal option, for dealing with remaining soil contamination. According to Alternative A, soils in the four most contaminated areas would be removed and transported to a U.S.EPA approved facility. Soils found to contain greater than 1 part per million (ppm) of PCBs would also be removed and disposed of offsite.

The remaining soils and sediments contain low levels of polynuclear aromatic hydrocarbons (PNAs). Levels are comparable to concentrations found naturally in the environment and do not present environmental or public health risks.

The FS also set various guidelines called action levels that will guide soil removal activities. Soil that has concentrations at or higher than these action levels will be disposed of offsite at a U.S. EPA approved facility.

The sediment data in the RI showed concentrations well below the suggested action levels. Therefore, sediment will not be removed.

All buildings and equipment onsite will be removed and disposed of offsite. The concrete foundation will also be removed and soil underneath will be sampled to determine if any contamination exists there.

PUBLIC COMMENTS/U.S.EPA RESPONSES

The draft A&F Feasibility Study was issued in October 1984. A public meeting was held on December 4, 1984, in the Town of Greenup, Illinois. A three week comment period followed. It was extended an additional two weeks to enable the public to more closely study the document. A final FS was submitted to U.S. EPA on January 18, 1985.

The verbal and written comments can be divided into the following categories:

- Soil and sediment
- Buildings and equipment
- Groundwater

Comments that required a response by U.S.EPA are summarized in this section. Public comments are edited and sometimes paraphrased so similar comments can be combined. The intent has been to present the full range of topics without lengthy repetition. Groundwater issues will be addressed in a separate document.

SOIL AND SEDIMENT

Comment:

"The RI/FS missed widespread areas of soil contamination because of errors in the soil sampling program. A 1980 remedial action covered up contaminated soil offsite with clean soil from a nearby hillside. The RI/FS sampling program failed to sample and analyze this contaminated soil below the hillside."

U.S. EPA Response:

Originally, three areas of highly contaminated soils were found onsite. They are called "highly contaminated" because they contained contaminants at levels that were significantly above levels normally found in the environment. These highly contaminated areas were in the two tank farms and around the western edge of the processing section of the building. Additionally, a small area of soil contaminated with 1 ppm of PCBs west of lagoon 1 was identified. Soils in all of these areas have been or will be removed from the site and disposed of offsite at a U.S.EPA approved facility.

There were several areas of lightly contaminated soils found generally west of the waste lagoons. The term "lightly contaminated" refers to soil that contains low levels or traces of contaminants that have no health or environmental concerns associated with them. In other words, lightly contaminated areas have concentrations of chemicals that might naturally occur in the environment.

In 1980, 1 foot of soil was removed from the west part of the site and covered with clean soil. Samples for the RI/FS were taken in that area, including samples at depths of one to two feet, that would pick up any contamination under the clean soil. The Consenting Defendants and the Illinois Attorney General's office also resampled the soil in December 1984 to depths of 4 feet. Hazardous substances were not found in the new samples; however, aliphatic hydrocarbons were found at low levels. The Centers for Disease Control has reviewed these results and found no health problem. The Consenting Defendants will be required to resample this area at various depths, up to 4 feet. If this area is contaminated with hazardous substances, the soil will be removed.

U.S. EPA, therefore, believes that samples were taken deep enough to find any existing contamination. U.S. EPA believes that the RI/FS sampling program was sufficient.

U.S. EPA believes there are no data to support that remaining soils present a threat to public health or the environment.

Comment:

Leaving soils may present odor problems, particularly in the summer months and during wet weather.

U.S.EPA Response:

Buried contaminated soil should not be an odor problem. There appears, however, to be an indication that decomposition of organic materials that produce methane and other odor-causing compounds, common in marshy areas, could present an occasional odor problem. In any event, according to the recommended alternative, the site will be graded, depressions will be filled to prevent ponding, and topsoil will be added. This may or may not affect possible odors from the site. The odor problem which was present at the site in the past will have been eliminated by the removal of the lagoons, tanks and highly contaminated soil from the surface of the site.

Comment:

Is the soil underneath the building foundation contaminated?

U.S. EPA Response:

When the foundation is removed, the soil will be sampled. If the soil is contaminated, it will be removed and disposed of offsite. The various action levels stated in the FS will determine whether the contamination levels in soils will justify their removal.

Comment:

U.S. EPA should make sure the topsoil between the site and the river is removed because groundwater flows through this area and could then become contaminated.

U.S. EPA Response:

The soil in the field does not contain levels of contaminants that would present any threats to public health or the environment. Therefore, removing the soil in the field between the site and the river is not necessary.

Comment:

One letter said that "black yuck" was dumped on the field between the river and the site and that no crops grew there until clean dirt was put there.

U.S. EPA Response:

The soil in this area was removed and placed west of the fenceline in 1980. The area has been sampled to depths of 4 feet. No contamination was found. Toluene at 0.8 parts per million (ppm) was found, but such levels do not pose health or environmental threats. (U.S.EPA water quality criteria state that 35 ppm is the level that would present environmental threats. In addition, levels of toxic chemcials in soil can be orders of magnitude higher than the levels in groundwater before they become health threats.)

Comment:

Sediment in the drainage ditch should be removed.

U.S. EPA Response:

The suggested action levels do not pose a threat to biota. Therefore, sediment removal and disposal is not recommended at this time.

BUILDINGS AND EQUIPMENT

Comment:

Buildings should be completely removed because therre is always the risk that sampling might have missed some contamination.

U.S. EPA Response:

The building and its foundation and all equipment will be removed and disposed of offsite. Soil under the building foundation will be sampled and if there is any contaminated soil or other materials found they will be removed.

MISCELLANEOUS

Many letters and verbal comments expressed concern and a desire for a total cleanup. Many letters said the site should be returned to the same condition it was bedore A&F Materials began operations.

U.S. EPA wholeheartedly agrees that the site should be left in a condition in which it presents no danger to the public and the environment. The Agency believes that the recommended alternative accomplishes this goal.